Fw: Rosemont Open Pit Copper Mine (SPL-2008-00816-MB)
Jason Brush
to:
Elizabeth Goldmann, Carter Jessop
02/13/2012 03:44 PM
Cc:
"Rich Campbell"
Hide Details
From: Jason Brush/R9/USEPA/US
To: "Elizabeth Goldmann" <Goldmann.Elizabeth@epamail.epa.gov>, "Carter Jessop" <Jessop.Carter@epamail.epa.gov>,
Cc: "Rich Campbell" <Campbell.Rich@epamail.epa.gov>

Have to check, but it appears ADEQ's comment on the PN may have been done by email only (I.e. No letterhead).

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**From:** "Linda C. Taunt" [Taunt.Linda@azdeq.gov]
**Sent:** 02/13/2012 04:10 PM MST
**To:** Laura Bose; Jason Brush
**Subject:** FW: Rosemont Open Pit Copper Mine (SPL-2008-00816-MB)

FYI

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**From:** Linda C. Taunt
**Sent:** Monday, February 13, 2012 4:05 PM
**To:** 'Blaine, Marjorie E SPL'
**Cc:** Michael A. Fulton
**Subject:** Rosemont Open Pit Copper Mine (SPL-2008-00816-MB)

Marjorie – as we discussed several weeks ago, ADEQ's preliminary review of the public notice for the draft 404 Permit for the Rosemont Open Pit Copper Mine, raises some possible concerns as it relates to the Department's role in processing a CWA 401 certification application. Without additional information on impacts to WUS and possible mitigation of such impacts, it is unclear how the agency will be able to find the proposed permit will not result in degradation of WUS. Below, I have briefly outlined the agency's concerns.

Preserving the OAW status of Davidson Canyon and Cienega Creek.

As part of its CWA 401 review process, in light of the predicted decreased runoff during operation and following closure of the Rosemont Mine, the agency's primary focus will be on ensuring the activities will not impact water quality in the downstream Outstanding Arizona Waters -- Davidson Canyon and Cienega Creek. Cienega Creek was one of the original OAWs designated by ADEQ in 1992. Davidson Canyon Wash is a rare, spring-fed desert stream that flows into Cienega Creek near Marsh Station Road and was designated as an OAW by ADEQ in January, 2009.

The application for the CWA 404 permit is for the DEIS preferred alternative, the Barrel-only Alternative (DEIS Alternative #4) which the applicant proposes as the best alternative to help protect and preserve the OAW status of Davidson Canyon and Cienega Creek. As submitted, the Project involves discharge of fill material into Barrel Canyon and associated tributaries including Wasp Canyon, McCleary Canyon, Trail Canyon and other unnamed ephemeral washes for construction of the proposed Rosemont Copper project. Most of these impacts will result from the development of the pit, associated waste rock storage areas and ancillary mining facilities. Selection of this alternative for the 404 Permit will allow a slight increase in runoff as compared to other alternatives by leaving most of the McCleary drainage and the entire Scholefield drainage open throughout the mine's operations

and following post-closure.

ADEQ is concerned that the project, as proposed, may modify hydrologic flow and sediment regimes in the watershed that will impact downstream reaches of Davidson Canyon Wash and Cienega Creek. As OAWs, Tier 3 antidegradation rules (A.A.C. R18-11-107) apply, which state "existing water quality shall be maintained and protected in a surface water that is classified as an OAW... Degradation of an OAW is prohibited." ADEQ is concerned that the application may not demonstrate that modification to hydrology, sediment transport and pollutant discharges, as a result of the proposed project, will not result in significant water quality impacts to the two downstream OAWs.

The DEIS recognizes that there is significant uncertainty associated with the predicted impacts to both Davidson Canyon and Cienega Creek, noting that impacts will depend on the nature of the hydrologic connection between the basin fill aquifer and the regional aquifer, and the nature of the connection of Cienega Creek with the basin fill aquifer, both of which the DEIS points out, are poorly understood. Given the uncertainty regarding the origin of the groundwater supplying the springs, the reduction in runoff and the fact that the models were designed to predict drawdown in the vicinity of the mine project area and not off-site impacts to downstream waters, ADEQ is concerned about the Project's impact on current uses and the protection of both Davidson Canyon and Cienega Creek as OAW's.

The Project will result in modifications to stormwater peak flows and overall runoff volume from the watershed. These reductions translate to less water availability for downstream use. According to the DEIS, the Project, as proposed, will reduce stormwater runoff from the project area by nearly 46%. Estimated stormwater flows in the Davidson Canyon watershed will be reduced between 3.6 - 7.1% (DEIS p. 315). One study estimates Davidson Canyon's relative contribution of base flows to Cienega Creek at Marsh Station Road range from 8- 24%[1]. Therefore reductions in flows to Davidson Canyon may result in reductions in water availability in Cienega Creek, especially during periods of low flow and drought. The predicted potential for the Project to reduce surface and subsurface flows to the OAW suggests a potential loss of assimilative capacity and therefore, potential degradation of water quality (A.A.C. R18-11-107(D) and R18-11-107.01(C)).

Ephemeral and intermittent streams also provide natural erosion and sediment control. Changes to sediment transport in streams can adversely affect water quality by increasing total suspended sediment in surface water flows and altering the physical integrity of the system, causing problems with scour or aggradation. The DEIS states the Project, as proposed, will decrease sediment yield from Barrel Canyon Wash, upstream of the USGS gaging station, by 51%. This may cause changes in the geomorphology in Barrel Canyon Wash between the mine and its confluence with Davidson Canyon. Such changes have the potential to result in the degradation of water quality in the OAWs (A.A.C. R18-11-107(D) and R18-11-107.01(C)).

Recommendations for monitoring and mitigation of impacts

Knowing that downstream surface flows will be reduced, it is important to divert as much of the unimpacted stormwater flows from the project area as possible to the natural drainage system to help recharge the shallow alluvial aquifers, which are important for maintaining flows in Davidson Canyon. Reach 2 Spring and Escondido Spring are strongly influenced by stormwater runoff from summer precipitation which infiltrates the alluvial aquifer. Given these facts, the construction of the pit diversion channel, permanent diversion channel No. 1 and the flow-through drainage system to divert unimpacted stormwater around the pit and through the dry-stack tailings and waste rock facilities to downstream watercourses should help address this issue.

Based on concerns outlined above, ADEQ recommends that the Corps require additional monitoring of streamflow in Davidson Canyon and Cienega Creeks, before, during and after mine construction; and, if warranted, mitigation of reduced flows. ADEQ supports Rosemont Copper's intent to fund USGS to operate/ maintain the Lower Barrel Canyon Wash gaging station. However, in addition to the 5 years following cessation of mining, ADEQ recommends regular (i.e., quarterly, semi-annually, annually) flow monitoring in Davidson Canyon and Cienega Creek throughout the life of the mine operations, which will provide significant flow monitoring data to assess whether water quality is impacted within these downstream OAWs.

The 404 permit should also be conditioned such that additional mitigation measures be required if the model has underestimated the impacts to Davidson Canyon or Cienega Creek which might include a requirement of

replenishment/ make-up water of comparable quality and quantity to offset the predicted water loss resulting from mining during operations and post-closure as part of the potential mitigation required under the 404 Program. The purpose of these measures would be to supplement water sources that provide surface and groundwater flows that maintain the OAW status of Davidson Canyon and Cienega Creek. Effectiveness of any mitigation measures can only be determined through follow-up monitoring.

ADEQ looks forward to working with the Corps on these concerns.

Linda Taunt, Deputy Director
Water Quality Division

[1] Pima Association of Governments, 2003. *Contribution of Davidson Canyon to Base Flows in Cienega Creek*, 40 pgs.